

U.S. Serial No.: 10/616,882

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## LISTING OF CLAIMS

1. (Original) A mesh access network, comprising:

- 5       at least one base-station comprising a plurality of sectors;  
          each sector comprising of a plurality of terminal nodes, said terminal nodes  
          comprising both indoor terminal nodes and outdoor terminal nodes, and comprising a  
          plurality of outdoor repeaters;  
          wherein said nodes in each sector are arranged in a tree structure starting from  
10   said base-station;  
          wherein said base-station sectors use different frequency bands that are located  
          in alternate sectors of said base-station; and  
          a module for interference management and sector reuse comprising network  
          management of frequency, time, and directionality.

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2. (Original) The network of Claim 1, comprising:

- at least one Base-Station → Level1-repeaters link; and  
          at least one Repeater → Repeater/Terminal or Base-station → Terminal link.

- 20   3. (Original) The network of Claim 2, wherein said Base-Station → Level1-repeaters link  
          can be active in all sectors in all cells simultaneously due to of transmitter and receiver  
          antenna directionality;

          wherein a predetermined percentage of all time-slots are preferably reserved for  
          Base-Station → Level1-repeaters links.

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4. (Original) The network of Claim 2, wherein said in-sector Repeater →  
Repeater/Terminal or Base-station → Terminal link is active only in an assigned time-  
slot;

- 30       wherein said repeaters distribute data packets to/from terminals in said time-slots  
          by scheduling non-interfering links to transmit at a same time.

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5. (Original) The network of Claim 1, wherein a sector of each base-station having a first frequency band is at least a cell radius away from another sector having said first frequency band.

5 6. (Original) The network of Claim 1, wherein sectors with a same carrier and time-slot assignment are located a cell radius away from each other.

7. (Original) The network of Claim 1, wherein communication with nodes in a sector that cannot communicate directly with said base-station is done through a first set of  
10 repeaters in a sector;

wherein data packets from said base-station to a node are switched to said node through multiple hops; and

wherein data packets from a node are transmitted through multiple hops to said base-station.

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8. (Original) The network of Claim 1, wherein capacity of a base-station is increased by adding more carriers.

9. (Original) The network of Claim 7, wherein carriers are added sector by sector;  
20 wherein a different base-station radio is provided for each sector for each carrier.

10. (Original) The network of Claim 9, wherein at least a second set of first level repeaters is provided to communicate with said base-station on different carriers at the same time.

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11. (Original) The network of Claim 9, wherein other nodes in each sector must switch to different carriers for in-sector time-slots.

12. (Original) The network of Claim 1, wherein each sector in said network represents a  
30 tree structure rooted at said base-station.

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13. (Original) The network of Claim 1, further comprising:

a plurality of links that use any of two types of time-slots for communication, wherein said time slots comprise long time slots and short time slots.

5 14. (Original) The network of Claim 13, wherein long time-slots are spectrally efficient and are adapted to transmit a large number of bytes in each time-slot.

15. (Original) The network of Claim 14, wherein said base-station communicates with level-1 repeaters (R1) using long time-slots, wherein said time-slots carry substantially  
10 all packets in said network destined to/from repeaters and terminals connected thereto.

16. (Original) The network of Claim 13, wherein short time-slots have about 20% the capacity and 25% the duration of the long time-slots.

15 17. (Original) The network of Claim 16, wherein substantially all Repeater → Repeater/Terminal and Base-station → Terminal links use short time-slots.

18. (Original) The network of Claim 16, wherein short time-slots are time-multiplexed to maximize utilization of spectrum and reduce latency.

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